

Southwestern Colorado, Texas, Arizona and northern Lower California.

- 6a. **Sphenopholis interrupta californica** (Vasey) Scribn. n. comb.
Trisetum californicum Vasey, 1893.
Texas.

7. **Sphenopholis Hallii** Scribn. n. comb.
Trisetum Hallii Scribn. 1884.
Texas.

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SOME MAINE RUBI. THE BLACKBERRIES OF THE KENNEBUNKS AND WELLS.—I.

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IN this and in papers to follow are given the results of a careful and persistent study of the blackberries of Kennebunk, Kennebunkport and Wells, three adjoining sea-coast towns in Southwestern Maine, well-known summer resorts. The time given to this study was two weeks in August, 1904, and all the time from June 24 till Sept. 10, 1905, except one week in August spent in Connecticut. Kennebunk village was headquarters, and the steam and electric railroads made it comparatively easy to reach all parts of the section.

Much of the soil is sandy with outcropping rocks. Woods predominate made impenetrable by hospitable mosquitoes, while the highways are made dangerous by inhospitable automobilists. Many White Mountain and high northern plants such as *Aster radula*, Ait., are common, while no such plants as the Black Raspberry, *Desmodium* or *Lespedezas* appear. A few miles north the normal flora of this latitude begins to be seen.

But five of the blackberries of Vermont and Connecticut were found: *Rubus Allegheniensis*, Porter (*R. nigrobaccus*, Bailey and *R. villosus*, of Gray's Manual) the common high blackberry of the north-east which is often very poor here; *R. recurvans*, Blanchard here perfectly at home; *R. procumbens*, Muhl. (*R. canadensis* of Gray's Manual); and innumerable forms of *R. hispidus*, L. and *R. setosus*, Bigelow (*R. nigricans*, Ryd.). The edible forms of blackberries except in

favorable situations do not furnish bountiful crops in this section and pickers are neither plenty nor enthusiastic, but the blueberry pickers are numerous and successful.

Of the nine species and varieties of plants considered in this paper, the first four are prostrate dewberries of the *Procumbens* class with edible fruit and canes of nearly the same size throughout. The last five belong to a class with stems thick at the base, tapering upward and outward, erect at first, recurving and tipping like a Black Raspberry. They have wide leaflets and the growth on old canes resembles that of the dewberries. They are called "mongrels," "half-high" and other expressive names.

* Stems prostrate. True Dewberries of the *Procumbens* class.

+ Prickles recurved, hooked.

RUBUS PROCUMBENS, Muhl. Plants completely prostrate, glandless, slightly pubescent, prickles strongly hooked; canes killing back most of their length in unprotected places; leaves of moderate size, 3-foliate; inflorescence with a few nearly erect slender pedicels; strongly tipping, *i. e.* rooting at the tip.

New canes. Stems prostrate, 4 to 8 ft. long, greenish, terete, glabrous and glandless, hard, often branched, and late in August branching at the ends, the latter swelling and tipping vigorously. Prickles short, strong, conspicuously hooked, quite numerous, 8 to 16 to the inch of stem, not noticeably in lines. Leaves of moderate size, rather thick, 4 to 5 in. long and wide, normally 3-foliate but often becoming 5-foliate, shining yellow-green on the upper surface, the few hairs often disappearing with age, bright green below and slightly pubescent, with hairs also on the large veins, ciliate on the edges. Leaflets rhomboidal or oval, entire in outline, abruptly narrowed to a taper point, rather coarsely and slightly doubly serrate-dentate or slightly serrate, the base entire; the middle one often nearly orbicular, 2 in. or more broad, the side ones wide, more or less lobed on the lower side, frequently divided, then cuneate at both ends and much narrower than the middle one; the basal leaflets quite narrow and cuneate. Petiole and petiolules rather slender, grooved, nearly or quite glabrous, prickles short and much hooked; the petiolule of the middle leaflet $\frac{1}{2}$ in. long, the others sessile.

Old canes. Badly killed back except in protected places, prickles intact. Second year's growth consisting entirely of leafy, erect branches or stemlets, one from the axil of each old leaf, all bearing inflorescence. Branch stems 4 to 7 in. high, irregularly angled, considerably pubescent, often quite so, glandless, prickles slender, not numerous, slanting backward or hooked. Leaves 3-foliate or the upper ones unifoliate, bright green on the upper surface, paler below; in texture and pubes-

cence like those on the new canes. Leaflets oval, obovate or ob-wedge-shaped, sparsely serrate and cuneate at the base, rather coarsely serrate-dentate above and broadly pointed. Petiole and petiolules slightly grooved above, glandless, somewhat pubescent, prickles generally slender and hooked. Inflorescence with from 3 to 7, frequently 1, nearly erect, slender pedicels from $\frac{1}{2}$ to $2\frac{1}{2}$ in. long, more or less pubescent, glandless; or sometimes cymose or racemose. Pedicels subtended by leaves or leaflike bracts. Flowers, appearing the 20th of June, about 1 in. broad, petals wide, sepals very pubescent or woolly, mucronate. Fruit, ripe about the first of August, nearly globose, $\frac{1}{2}$ in. in diameter; drupelets large, averaging nearly $\frac{3}{16}$ in. in diameter. Two fruits counted and measured: $\frac{7}{16}$ in. high, $\frac{1}{2}$ in. wide with 15 drupelets each $\frac{3}{16}$ in. in diameter; $\frac{1}{2}$ in. high, $\frac{1}{2}$ in. broad with 19 drupelets each $\frac{2}{16}$ in. in diameter. Very edible.

A representative station: The territory in a radius of one-fourth of a mile around the railroad station at Wells Beach, Me. Frequent throughout Wells, Kennebunk and Kennebunkport. Found also in North Berwick, Biddeford and Saco. Dry open places.

This species is probably the one named *R. villosus* by Aiton in 1789 but the name had been used before. Gray, Wood and others called it *R. Canadensis*, L. The older authors called it *R. trivialis*, Michx. but Dr. Muhlenberg segregated it from that species in 1818. Bigelow gave a very good description of it growing on sandy ground but held to the name given it by Michaux using that of Muhlenberg as a synonym. That Muhlenberg named *this* plant need not be doubted though he did not describe it and left no specimens. The writer has recently (July, 1906) searched for several days in the southeastern part of Pennsylvania including Lancaster, Muhlenberg's old home and with the exception of a little *R. hispidus* no other dewberry could be found. The forms in Connecticut and those growing around Philadelphia, Lancaster, Baltimore and Washington are the same. It is common in Southern New England but in Maine, New Hampshire and Vermont it seems to be restricted to the White Oak sections or nearly so.

Rubus geophilus, n. sp. Plants perfectly prostrate, glandless, somewhat pubescent, prickles slender and hooked; canes very long and soft; leaves very large, 5-foliate, outline jagged, very coarsely serrate; stemlets very tall; inflorescence a few very erect, large and very long pedicels; fruit remarkably large; tipping readily.

New canes. Stems prostrate, 6 to 12 ft. long, greenish, glabrous and glandless, soft, tipping readily late in August from swelled ends. Prickles rather short, slender, hooked, not numerous, 5 to 10 to the inch of stem, not noticeably in lines. Leaves large, 6 in. long and wide,

rather thick, normally 5-foliate many 3-foliate, shining light yellow-green with appressed hairs on the upper surface, whitish with long appressed pubescence on the veins below, ciliate. Leaflets oval, outline broadly jagged, generally regularly so, short taper-pointed, very coarsely and doubly serrate and serrate-dentate, entire at the base; the middle leaflet very broad; the side leaflets one-half as wide as long, cuneate at both ends; the basal ones similar but much smaller. Petiole and petiolules stout, glandless, nearly glabrous, green, grooved; prickles few, stout, hooked; the petiolule of the middle leaflet $\frac{1}{2}$ in. long, the side ones very short, and the basal leaflets sessile.

Old canes. Considerably killed back, prickles somewhat broken. Second year's growth consisting of erect branches or stemlets 4 to 10 in. long, generally one from each old leaf axil, all bearing inflorescence. Axis somewhat zigzag, irregularly angled, green, glandless, slightly pubescent; prickles few, small, slender, generally hooked. Leaves large, 3-foliate, those of the inflorescence unifoliate; in color, texture and pubescence like those on the new canes. Leaflets and unifoliate leaves similar, oval, short-pointed at each end, coarsely and somewhat doubly serrate-dentate. Petiole and petiolules green, grooved, faintly pubescent; prickles few and small, hooked; the petiolule of the middle leaflet less than $\frac{1}{2}$ in. long, the side ones sessile. Inflorescence one to five green erect pedicels, 1 to 3 in. long, somewhat pubescent, glandless, subtended by leaves, the lower by the trifoliate, the others by the unifoliate ones. Flowers, appearing late in June, large, $1\frac{1}{4}$ in. broad; petals oval, one-half as wide as long; sepals pubescent or woolly, mucronate. Fruit short-oblong approaching globose, not regular, large and composed of the largest drupelets, sometimes $\frac{1}{4}$ in. in diameter. Four measured and counted: $1\frac{1}{8}$ in. high by $\frac{9}{16}$ in. broad, 32 drupelets each $\frac{3}{16}$ in. in diameter; $\frac{3}{4}$ in. by $\frac{5}{8}$ in., 36 drupelets each $\frac{3.5}{16}$ in.; $\frac{3}{4}$ in. by $\frac{5}{8}$ in., 23 drupelets each $\frac{1}{4}$ in.; $\frac{9}{16}$ in. by $\frac{9}{16}$ in., 13 drupelets. Very edible. Fruiting season from August 1 to August 15.

Type stations: Near the railroad station Arundel in Kennebunkport, Me.; at the springhouse, Grove station in Kennebunk; near the railroad station at West Kennebunk; the ocean bank at Cape Arundel, Kennebunkport opposite the cottage of Mr. Ogden; and in a pasture near the station at Wells Beach. Open, dry ground. Frequent in Wells, Kennebunk and Kennebunkport.

This large dewberry may be worthy of cultivation, but the experience of the writer has been that no dewberry save in exceptional situations and in exceptional years produces much of a crop.

+ + Prickles straight.

Rubus plicatifolius, n. sp. Plants entirely prostrate, glandless, slightly pubescent, prickles slender and straight, never hooked; inflorescence a raceme with wide-spreading pedicels, remarkably fruitful, the fruit largely lying on the ground from its weight. Leaves large,

5-foliate, noticeably yellow, the leaflets with conspicuously plaited or ruffled margins. Tipping readily.

New canes. Stems prostrate, 4 to 6 feet long, greenish, terete, glabrous and glandless, often branched, the ends swelling late in August and readily tipping. Prickles long, slender, rather strong, straight with a backward slant, never hooked except near the tipping end, not numerous, 5 to 10 to the inch of stem, not noticeably in lines. Leaves rather large and thick, 5 to 6 in. long and wide; normally 5-foliate but often 3-foliate on early growth; noticeably yellow; light yellow-green and perfectly glabrous on the upper surface, lighter below and slightly pubescent, with hairs on the large veins; slightly ciliate. Leaflets oval, outline entire, taper-pointed; deeply, finely, sharply and somewhat doubly serrate-dentate, the base entire, the margin remarkably wavy-plaited or ruffled; the middle leaflet very broad, frequently nearly orbicular, often $2\frac{1}{2}$ in. wide; the side leaflets one-half as wide as long, cuneate at the base; and the basal ones smaller but having the same proportion. Petiole and petiolules rather slender, yellow, sparingly pubescent, grooved; prickles slender, strong, slightly hooked; the petiolule of the middle leaflet $\frac{3}{4}$ in. long, the side ones one-fourth as long and the basal leaflets sessile.

Old canes. But slightly killed back, prickles much broken. Growth of second year consisting of erect branches; occasionally a pure leaf branch, mostly fruit branches, 3 to 6 in. high, those near the base of the cane longer and more leafy than those nearer the extremity, generally one from each old leaf axil. Axis zigzag, irregularly angular, yellow, pubescent, glandless; prickles few, weak, straight and slender. Leaves very small, 3-foliate, those on the inflorescence unifoliate; in color and texture like those on the old canes, but more pubescent. Leaflets oval, pointed at both ends, deeply serrate-dentate with incurved teeth, the margins plaited or ruffled. Petiole and petiolules yellow, pubescent; prickles slender and few, nearly straight. Inflorescence a broad raceme, the axis 1 to $1\frac{1}{2}$ in. long with 6 or 8 pedicels set at a great angle to the axis, pubescent but glandless. Flowers rather large, $1\frac{1}{8}$ in. broad; petals oval one-half as wide as long; sepals very pubescent or woolly, mucronate; appearing about July 1. Fruit short-cylindric, not globose, about $\frac{5}{8}$ in. high and $\frac{1}{2}$ in. wide with large drupelets $2\frac{1}{2}$ to 3 sixteenths inches in diameter. Four measured and counted: $\frac{5}{8}$ in. high by $\frac{1}{2}$ in. wide 28 drupelets; $\frac{8}{16}$ in. by $\frac{8}{16}$ in., 27 drupelets; $\frac{7}{16}$ in. by $\frac{3}{8}$ in., 18 drupelets; $\frac{3}{8}$ in. by $\frac{3}{8}$ in., 20 drupelets. Very productive; picking season from August 1 to August 15.

Type stations: The railroad depot at Wells Beach and the highway thence to Kennebunk village, Maine. Very abundant in various places in Wells, Kennebunk and Kennebunkport. Also in North Berwick. Open places, especially in sandy ground.

The plaited or ruffled margins of the leaves of this plant make it unique among dewberries if not among blackberries in general. It

has, too, a regular raceme and is so loaded that the fruit lies on the ground.

Rubus arenicolus, n. sp. Plants perfectly prostrate, glandless but very pubescent, prickles long and straight, tipping readily. Inflorescence a corymbose cyme, flowers large and very conspicuous. Leaves small, 3-foliate, leaflets nearly orbicular. Prefers a sandy or gravelly home.

New canes. Stems very prostrate, brown, terete, 5 to 10 feet long, glabrous and glandless, the ends swelling and tipping in September. Prickles long, nearly $\frac{3}{16}$ in., straight with a slight backward slant or none, never hooked except near the tipping end, numerous, 10 to 20 to the inch of stem, not noticeably in lines. Leaves small and quite thick, $4\frac{1}{2}$ in. long by $3\frac{1}{2}$ in. broad, 3-foliate with an occasional leaf 5-foliate, light yellow-green with abundant appressed hairs on the upper surface, whiter beneath with copious pubescence and velvety to the touch, slightly ciliate. Leaflets nearly or quite orbicular, outline nearly entire, very short-pointed, finely and doubly serrate below, serrate-dentate above; the side ones more or less lobed on the lower side. Petiole and petiolules stout, reddish, glandless, very pubescent, deeply grooved; prickles long, slender, numerous, slightly hooked or straight; the petiolule of the middle leaflet $\frac{1}{2}$ in. long, the side ones sessile.

Old canes. Stems slightly killed back, prickles intact. Growth of second year consisting of erect, leafy fruit branches, 3 to 6 in. long, decreasing regularly in length from the base of the stem, one from each old leaf axil. Axis zigzag, irregularly angled, green, very pubescent, glandless, prickles slender, straight or slightly hooked. Leaves small, 3-foliate those of the inflorescence unifoliate, in color texture and pubescence like those on new canes. Leaflets broad-oval about 1 in. long and $\frac{3}{4}$ in. wide, broad-pointed at each end, generally sharply serrate or serrate-dentate; the unifoliate leaves often very wide, frequently nearly cordate. Petiole and petiolules green, very pubescent, prickles slender, hooked; the middle leaflet only stalked. Inflorescence an irregular cyme with 4 to 6 pedicels, very pubescent, glandless, with numerous long, slender, straight prickles, set perpendicularly to the pedicel. Flowers appearing the first week in July large and showy, $1\frac{1}{8}$ in. broad, petals broad oval or obovate, two-thirds as wide as long. Sepals white-woolly, mucronate. Fruit broad-oblong, about $\frac{1}{2}$ in. high and broad, drupelets large, $\frac{3}{16}$ to $\frac{1}{4}$ in. in diameter. Three measured and counted: $\frac{9}{16}$ in. high by $\frac{9}{16}$ in. broad, 19 drupelets; $\frac{1}{2}$ in. by $\frac{1}{2}$ in., 18 drupelets; $\frac{9}{16}$ in. by $\frac{5}{8}$ in., 22 drupelets. Very productive and edible. Fruiting season from August 10 to August 20. Open, sandy places.

Type stations: The railroad bank midway between Kennebunk depot and Parsons depot, Maine. Abundant around the Kennebunk town gravel-pit and in the highway below it, and at the

Kennebunk depot. Found also in numerous other places in Kennebunk and Wells.

This plant impressed the writer as very distinct in 1904 and was closely watched in 1905. Its abundant pubescence, large flowers, cymose inflorescence and late flowering considering its hot home distinguish it. Its tendency, too, to send up stocky flower stems from the root though not confined to this species is very noticeable.

* * Stems recurved. The end touching the ground or prostrate. The *Recurvans* class.

+ End often touching the ground, tipping in favorable places.

RUBUS RECURVANS, Blanchard. Described in RHODORA, Vol. 6 (1904), page 223. Plants with stems erect in dry situations, in favorable places recurving and sometimes tipping; very pubescent but glandless; leaflets broad; new growth polymorphous — leafy branches, fruit branches and nearly leafless racemes, often more than one from the axil of the same old leaf. Inflorescence a quite regular raceme; fruit cylindric with numerous rather small drupelets. Four measured and counted: $\frac{1}{2}$ in. high by $\frac{3}{8}$ in. broad, 25 drupelets; $\frac{9}{16}$ in. by $\frac{7}{16}$ in., 31 drupelets; $\frac{9}{16}$ in. by $\frac{7}{16}$ in., 39 drupelets; $\frac{5}{8}$ in. by $\frac{9}{16}$ in., 36 drupelets.

This species gives a good harvest of fine fruit and is abundant in many places in this section, notably on the west road from Kennebunk village to West Kennebunk midway between; at Wells Branch; around the sand-pit near Kennebunk cemetery; and between the railroad and Mousam river above Parsons station.

Var. **subrecurvans**, n. var. Plants dwarfish, pubescent; stems large and erect at the base, recurving, the end often touching the ground and tipping; prickles slender, strong and rather numerous. Leaves thin, very pubescent on the under surface, ternate in the early part of the season, the side leaflets deeply incised on the lower side, having a peculiar wavy appearance, leaflets very broad; these succeeded later by 5-foliate leaves. Inflorescence short-racemose with a few very short-stalked glands; flowers 1 in. broad, petals broad-oval; fruit subglobose, $\frac{1}{2}$ in. in diameter.

New canes. Stems erect, $1\frac{1}{2}$ to 2 feet high, soft, recurving, thick at the base, tapering gradually, the prostrate part maintaining one size, tipping in September, slightly angled, glabrous and glandless. Prickles slender, about $\frac{3}{16}$ in. long, 4 to 8 to the inch of stem, strong, straight, backward slant slight, set in lines on the angles of the stem or pith. Leaves thin, large, 3-foliate at first, these generally succeeded by 5-foliate smaller ones, glabrous and shining dark yellow-green on the upper surface, whiter and quite pubescent below, velvety to the touch, edges slightly ciliate or naked. Leaflets broad with long tapering points, outline entire or slightly incised, having a wavy

jagged look lost in the dried specimen, finely, sharply and doubly serrate becoming serrate-dentate toward the point, the middle leaflet rather broad-oval, nearly twice as long as wide, rounded at the base; the side leaflets on the trifoliate leaves also broad, oblique-angled at the base, more or less deeply and singly incised on the lower side, at length divided; on quinate leaves narrow-oval or rhomboidal, cuneate at the base; and the basal leaflets similar in shape but smaller. Petiole and petiolules slender, yellowish, slightly hairy, grooved; prickles rather numerous, slender, hooked; the petiolule of the middle leaflet $\frac{3}{4}$ in. long, the side ones short-stalked or sessile, the basal ones always sessile.

Old canes. Stems erect as before, soft prickles intact, light brown. New growth consisting of leafy fruit branches or occasionally a branch destitute of inflorescence, 3 to 7 in. long, one from each old leaf axil. Axis of branch yellowish, angled; prickles few, slender, hooked; pubescence considerable. Leaves rather large; in color, texture and pubescence similar to those on new canes; trifoliate, those of the inflorescence unifoliate. Leaflets long, rather narrow, oval, cuneate at each end, coarsely and somewhat doubly serrate, or approaching dentate toward the point; the unifoliate leaves similar in shape, or some wide and deeply incised, approaching trifoliate. Petiole and petiolules slender, grooved, yellowish, considerably pubescent; prickles slender, strong and hooked; the petiolule of the middle leaflet long, the others sessile. Inflorescence short-racemose; pedicels slender, pubescent with an occasional very short-stalked gland; subtended by small bracts and one or two unifoliate leaves, or on some by several small leaves. Flowers appearing about July 1 over an inch broad, petals broad-oval. Sepals rather long and slender, pubescent, with occasional, sometimes numerous, very short-stalked glands. Fruit subglobose, drupelets large, $\frac{3}{16}$ in. in diameter. Two measured and counted: $\frac{7.5}{16}$ in. high by $\frac{7}{16}$ in. broad, 16 drupelets; $\frac{5}{8}$ in. by $\frac{9}{16}$ in., 23 drupelets. Fruiting season from August 5 to August 20. Very edible.

Type station: In Kennebunkport, Maine, one-fourth mile north of the center of the village of Cape Porpoise on the Biddeford road. Abundant in the road and mowings east of it. Also two more stations in the town of Kennebunkport, one in Biddeford, and one in Old Orchard. Dry ground in open sun or light shade.

+ + End generally touching the ground or prostrate, commonly tipping.

Rubus recurvicaulis, n. sp. Plants glabrous $2\frac{1}{2}$ to 4 ft. high, stems very large at the base, recurving and the prostrate end tipping; prickles inconspicuous. Leaves large and thick generally blackening in drying, 5-foliate, leaflets broad. Inflorescence cymose-racemose, sepals occasionally glandular; flowers over 1 in. broad, petals broad oval; fruit subglobose $\frac{1}{2}$ in. in diameter.

New canes. Stems erect, rather soft, thick at the base, $2\frac{1}{2}$ to 4 feet high, recurving, the prostrate end swelling and tipping in September, more or less 5-angled or terete, brown, glabrous and glandless, sometimes branched. Prickles inconspicuous, slender, rather strong, straight, backward slant slight, not numerous, set in lines over the pentagonal pith. Leaves very large and thick on the erect part of the stem, often 8 in. long and 7 in. wide, smaller and thinner beyond, 5-foliate, very bright light yellow-green and glabrous on the upper surface, whiter and glabrous below, faintly ciliate; occasionally a few appressed hairs occurring on the upper surface and a few hairs on the veins beneath, slightly leathery to the touch. Leaflets oval or rhomboidal, taper-pointed, outline nearly or quite entire; finely, deeply, sharply and doubly serrate-dentate; the middle leaflet very broad, often on the large leaves nearly orbicular; the side leaflets also very wide on the leaves growing on the erect part of the stem, narrower on the recurving part and about one-half as wide as long, wedge-shaped at the base; and the basal leaflets similar in shape but smaller. Petiole and petiolules rather large, glabrous, grooved, yellowish; prickles medium size, hooked; the petiolule of the middle leaflet of large leaves 1 in. long; the side ones one-third as long, never sessile; the basal leaflets sessile.

Old canes. Stems erect as ever, prickles intact, well-tipped stems not killed back, easily cut. New growth consisting of leafy fruit branches solely, 4 to 8 in. long, no pure leaf branches on the lower part of the stem as in the erect species, usually one from each old leaf axil. Axis greenish, angled, prickles few and weak, glabrous or with faint pubescence, glandless, slightly zigzag. Leaves rather large, variable in shape, 3-foliate, those of the inflorescence largely unifoliate; thin, light yellow-green and glabrous. Leaflets normally broad-oval, pointed at each end, sharply, deeply and doubly serrate-dentate, often incised at the top; unifoliate leaves mostly broad also, incisely serrate-dentate; but narrow in some cases. Petiole and petiolules green, slender, nearly glabrous, grooved; prickles nearly wanting, the middle leaflet short-stalked, the side ones sessile. Occasionally more than one bud starting from an axil making a leafy mass with little inflorescence and narrow leaflets. Inflorescence cymose-racemose, axis short, pedicels 4 to 6, short, slender, glandless, nearly glabrous, subtended by small bracts. Flowers appearing about July 1 large, over 1 in. broad, petals broad-oval, showy. Sepals running to a slender point, nearly glabrous with occasional stalked glands on the outside, pubescent inside. Fruit very edible, subglobose, about $\frac{1}{2}$ in. high and wide; the drupelets large, from $\frac{3}{16}$ in. to $\frac{1}{4}$ in. in diameter. Seven measured and counted: $\frac{5}{8}$ in. high by $\frac{1}{2}$ in. broad, 25 drupelets; $\frac{9}{16}$ in. by $\frac{1}{2}$ in., 21 drupelets; $\frac{9}{16}$ in. by $\frac{9}{16}$ in., 19 drupelets; $\frac{7}{8}$ in. by $\frac{1}{2}$ in., 11 drupelets; $\frac{3}{4}$ in. by $\frac{1}{2}$ in., 9 drupelets; $\frac{9}{16}$ in. by $\frac{9}{16}$ in., 16 drupelets; $\frac{1}{2}$ in. by $\frac{1}{2}$ in., 12 drupelets. Picking season August 10 to August 25.

Type station: The road from Grove depot to the village of Kenne-

bunk Beach, Maine. A very abundant plant in roads, mowings and pastures in Wells, Kennebunk and Kennebunkport. Also in Biddeford and Old Orchard. Open ground and light shade.

The writer first noticed this plant in 1904 and doubtfully referred it to *R. recurvans*, but its distinctness soon became evident with more observation. The lack of pubescence and comparative lack of prickles are alone sufficient to distinguish it from that plant, while its tendency to blacken in drying seems to be greater than that of any other blackberry.

Var. **inarmatus**, n. var. Plants large-stemmed, glabrous, glandless and nearly unarmed, $1\frac{1}{2}$ to 2 ft. high, recurving and the long slender end tipping. Leaves 5-foliate, thick, the earlier ones very large. Inflorescence an irregular cyme; flowers very large and showy, from $1\frac{3}{8}$ to $1\frac{5}{8}$ in. broad, petals wide; fruit globose, $\frac{1}{2}$ in. in diameter.

New canes. Stems erect, $1\frac{1}{2}$ to $2\frac{1}{2}$ feet high, thick at the base, brown, soft, recurving with a long, slender prostrate end, tipping in September, slightly angled, glabrous and glandless. Prickles very few and small, often none, straight, set on the angles of the stem or pith. Leaves thick, those appearing early very large, smaller beyond, yellow-green and glabrous on the upper surface, paler beneath and apparently glabrous, but with an appressed pubescence, not ciliate, 5-foliate. Leaflets broad, short taper-pointed, outline entire, finely and doubly serrate-dentate; the middle leaflet very broad, often nearly orbicular and approaching cordate; the side ones broad also, rhomboidal, broadly cuneate; the basal ones similar in shape but smaller. Petiole and petiolules large, glabrous, yellowish, prickles wanting; the petiolule of the middle leaflet about 1 in. long, the side ones one-fourth as long, and the basal leaflets sessile.

Old canes. Stems much nearer the ground, reddish brown, soft, prickles entirely wanting. New growth consisting entirely of leafy fruit branches 4 to 8 in. long, or rarely a branch without inflorescence, generally one from each old leaf axil, frequently several. Axis of branch green-yellow, angled, unarmed, finely pubescent, zigzag. Leaves of good size, coarse texture, 3-foliate; some on the inflorescence unifoliate; glabrous and yellow-green on the upper surface, light and faintly pubescent beneath. Leaflets narrow-oval, long; pointed at each end, rather coarsely and doubly serrate, nearly dentate toward the point; the unifoliate leaves mostly very broad and deeply 2-incised, approaching trifoliate. Petiole short, stout, grooved, unarmed, pubescent, the petiolule similar; the middle leaflet short-stalked, the side ones sessile. Inflorescence cymose approaching racemose, pedicels 4 to 6, rather long, slender, glandless, slightly pubescent, subtended by small bracts. Flowers very large, from $1\frac{3}{8}$ to $1\frac{5}{8}$ in. broad; the petals wide, measuring from $\frac{1}{16}$ in. long by $\frac{7}{16}$ in. wide to $\frac{1}{16}$ in. long by $\frac{8}{16}$ in. wide; sepals abruptly narrowed to a

point, hardly mucronate, very pubescent but glandless; opening about July 1. Fruit globose, $\frac{1}{2}$ in. in diameter composed of large drupelets. Ripe early in August. Very edible but a poor cropper most of the fruit blighting and producing "dry fruit."

Type station: The railroad yard, ball-ground and waste dumps between the shoe-shops in the village of Kennebunk, Maine. Several large clumps in different parts of these grounds.

Rubus semierectus, n. sp. Plants erect at first, $1\frac{1}{2}$ to $2\frac{1}{2}$ ft. high; stems small at the base recurving and the long prostrate end tipping; often entirely prostrate the second year, sometimes nearly so the first; prickles rather numerous, straight. Leaves numerous, thin, somewhat pubescent, not large, very variable in size, 3-foliate or more often 5-foliate, leaflets often concave or convex drying with a wrinkled centre. Inflorescence corymbose, variable, often slightly glandular; flowers very small; fruit irregular in shape, not large, often abundant.

New canes. Stems erect or decumbent, recurving on vigorous, normal plants, the end of the cane often prostrate, greenish, terete, glabrous and glandless, sometimes branched, the ends normally swelling and tipping in September. Prickles short, slender, straight, strong, backward slant slight, never hooked, rather numerous, 10 to 15 to the inch of stem, not noticeably in lines. Leaves not large, very variable in size, thin, 3-foliate or more often 5-foliate, generally quite yellow, dull yellow-green with many appressed hairs on the upper surface, lighter beneath and considerably pubescent, very variable in amount, slightly ciliate. Leaflets broad-oval, often concave or convex, drying with a wrinkled center, outline nearly entire, short-pointed, finely and doubly serrate-dentate; the middle leaflet very broad, often orbicular; the side leaflets of trifoliate leaves also very broad and more or less singly cleft on the lower side; the side leaflets of quinate leaves broad oval, rhomboidal or obovate, broadly cuneate at the base; and the basal leaflets similar in shape but smaller. Petiole and petiolules yellowish, rather slender, glabrous and glandless, grooved; prickles rather numerous, slender and hooked; the petiolule of the middle leaflet about $\frac{3}{4}$ in. long, the side ones short-stalked, and the basal leaflets sessile.

Old canes. Often prostrate especially in fruit, prickles much broken. Growth of second year mostly fruit branches, occasionally a leaf branch, 5 to 10 in. long, commonly one from the axil of each old leaf. Axis of branch zigzag, irregularly angled, stout, yellow, pubescent, glandless; prickles few, slender, hooked. Leaves varying much in size and shape, 3-foliate, those of the inflorescence unifoliate, in color, texture and pubescence like those on new canes. Leaflets oval, often broad-oval, pointed at both ends, serrate-dentate. Petiole and petiolules slender, grooved, pubescent and glandless, the middle leaflet short-stalked, the others sessile. Inflorescence of two kinds; one a slender raceme with long, slender pedicels set at a sharp angle to the axis; the other a close raceme with a very short axis, the pedicels

short and stout set at a great angle to the axis. Pedicels 5 to 10, pubescent, often glandular. Flowers opening about June 20 noticeably small, $\frac{3}{4}$ to $\frac{7}{8}$ in. broad; petals oval, twice as long as wide; sepals woolly, sometimes glandular, mucronate. Fruit irregularly globose, composed of from 5 to 30 drupelets mostly large. Three measured and counted: $\frac{1}{2}$ in. high by $\frac{7}{16}$ in. wide, 27 drupelets; $\frac{9}{16}$ in. by $\frac{1}{2}$ in., 32 drupelets; $\frac{5}{8}$ in. by $\frac{1}{2}$ in., 32 drupelets. Ripening season from August 1 to August 15. Very edible, the crop often good but too much small fruit. Type in Kennebunk, Maine. Abundant in Kennebunk, Kennebunkport and Wells. Also seen in North Berwick, Biddeford and Saco. Dry places, open ground.

This is the most variable plant described in this paper. Its small flowers distinguish it from all the others. Perhaps it should not be put in either class. The cane is small at the base like a dewberry, but its tendency to keep off the ground is so great that it is brought down solely by the weight of the plant, only long canes ever becoming prostrate.

SUPPLEMENTARY NOTE.—The writer has recently found *R. geophilus* in New Bedford, Massachusetts, and *R. plicatifolius* in Burrillville and Gloucester, Rhode Island. An interesting form of *R. recurvans* with dark green leaves and other peculiarities occurs in Connecticut, Rhode Island and Southeastern Massachusetts.

WESTMINSTER, VERMONT.

NOTES ON ALGAE,— VIII.

F. S. COLLINS.

GOBIA BALTICA (Gobi) Reinke, Algenflora der westlichen Ostsee, p. 65; *Cladosiphon Balticus* Gobi, Brauntange der Finnischen Meeresbusens, p. 12, Pl. I, figs. 7–11. Nearly related to *Dictyosiphon*, but the cortical layer is more strongly developed, and takes the form of densely packed, few-celled filaments, at right angles to the axis of the frond; in this layer are imbedded the oval unilocular sporangia, sometimes slightly projecting; and through it issue the hairs. The branches are contracted at the base; the branching is never very abundant, and sometimes the fronds are nearly or quite simple. It